

that under the conditions of this particular experiment the potassium nitrate did in certain cases compare favorably in performance to the regular greenhouse nutrient solution as a fertilizer material to provide a source of nitrogen and potassium. For more information see the Special Report entitled "Preliminary Greenhouse Test of Potassium Nitrate Materials" (Accession No. 77-062), which has been prepared.

A series of greenhouse experiments is being conducted with T. Laszlo, Project No. 1803, to determine the possible utility and effectiveness of using microwave energy to treat tobacco soil for the control of weeds by killing the weed seed to prevent germination. Experimental variables such as soil moisture, seed, duration of treatment, *etc.*, are being studied. Greenhouse pot tests are in progress.

REFERENCES

- | | | |
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Structural carbohydrate determinations have been obtained on the stems from the leaf washing of four harvests. No significant differences were noted as a function of stalk position. The preliminary results on the ^{210}Po content in the WSC as determined by the Martell procedure on the third harvest show no significant reduction. The results on the soluble ^{210}Po in the third harvest also show only a small reduction by leaf washing.

These results are not totally unexpected as the largest washing effects were thought to take place with the bottom (Harvest 1) leaves.

The experimental data on the variability of the chemical composition of various size smoke particles have been reduced. Previous results were verified which show that there are very little differences in the chemical composition of smoke particles ranging from about 0.5μ to 1.8μ in diameter. Particles smaller than 0.5μ , down to 0.1μ , do show markedly different compositions. By the use of cigarettes individually labelled with ^{14}C -bright, ^{14}C -Oriental, ^{14}C -burley, ^{14}C -sugar, ^{14}C -glycerol and ^{14}C -cigarette paper, the actual contribution of each ingredient in the 1R1 cigarette to these small particles has been demonstrated. On a relative basis, bright tobacco, glycerol and invert sugar contribute proportionally less to the small (less than 0.5μ) particles and the Oriental, burley and paper (cellulose) contribute more to the larger particles. Further analyses are underway to determine whether a mass balance has been established.

At the request of Development personnel, a preliminary test was conducted in the Greenhouse to determine the possible utility of the potassium nitrate crystals as a fertilizer material. This material is from the Pilot Plant denitration process for RL. A greenhouse pot test using sand and Ky. 31 Fescue grass combined with various fertilizer treatments was completed. The results of this test indicate

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